

WHAT IS CLAIMED IS:

1. An information processing apparatus,
comprising:

5 (a) first encoding means for encoding digital
data;

 (b) interleaving means for interleaving the
digital data; and

10 (c) second encoding means for encoding an output
of said interleaving means,

15 wherein first and second error correction encoding
algorithms are executed by sharing said first encoding
means.

20 2. An information processing apparatus according
15 to claim 1, wherein the first error correction encoding
algorithm encodes the digital data by using said first
encoding means, and the second error correction
encoding algorithm encodes the digital data by using
said first and second encoding means.

25 3. An information processing apparatus according
to claim 2, wherein the first and second error
correction encoding algorithms are executed in
parallel.

25 4. An information processing apparatus according
to claim 3, wherein a process of encoding the digital

data by the first error correction encoding algorithm using said first encoding means and a process of encoding the digital data by the second error correction encoding algorithm using said second encoding means, are executed in parallel.

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5. An information processing apparatus according to claim 1, wherein the first error correction encoding algorithm performs a convolutional encoding of the
10 digital data.

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6. An information processing apparatus according to claim 1, wherein the second error correction encoding algorithm performs a turbo encoding of the
15 digital data.

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7. An information processing apparatus according to claim 1, wherein the first error correction encoding algorithm performs a non-recursive convolutional encoding of the digital data by using said first encoding means, and the second error correction encoding algorithm performs a recursive convolutional encoding of the digital data by using said first encoding means.

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8. An information processing apparatus according to claim 1, wherein a constraint length of the digital

data encoded by the first error correction encoding algorithm is different from a constraint length of the digital data encoded by the second error correction encoding algorithm.

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9. An information processing apparatus according to claim 1, further comprising:

selecting means for selecting either the first or second error correction encoding algorithm in accordance with a type of the digital data.

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10. An information processing apparatus according to claim 1, further comprising:

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radio transmitting means for transmitting the digital data encoded by at least one of the first and second error correction encoding algorithms.

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11. An information processing method, comprising:

(a) a first encoding step of for encoding digital

data;

(b) an interleaving step of interleaving the digital data;

(c) a second encoding step of encoding an output of said interleaving step; and

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(d) a control step of controlling to make first and second error correction encoding algorithms be executed by sharing said first encoding step.

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12. An information processing method according to
claim 11, wherein the first error correction encoding
algorithm encodes the digital data by using said first
encoding step, and the second error correction encoding
5 algorithm encodes the digital data by using said first
and second encoding steps.

13. An information processing method according to
claim 12, wherein the first and second error correction
10 encoding algorithms are executed in parallel.

14. An information processing method according to
claim 13, wherein a process of encoding the digital
data by the first error correction encoding algorithm
15 using said first encoding step and a process of
encoding the digital data by the second error
correction encoding algorithm using said second
encoding step, are executed in parallel.

20 15. An information processing method according to
claim 11, wherein the first error correction encoding
algorithm performs a convolutional encoding of the
digital data.

25 16. An information processing method according to
claim 11, wherein the second error correction encoding
algorithm performs a turbo encoding of the digital

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data.

17. An information processing method according to
claim 11, wherein the first error correction encoding
5 algorithm performs a non-recursive convolutional
encoding of the digital data by using said first
encoding step, and the second error correction encoding
algorithm performs a recursive convolutional encoding
of the digital data by using said first encoding step.

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18. An information processing method according to
claim 11, wherein a constraint length of the digital
data encoded by the first error correction encoding
algorithm is different from a constraint length of the
15 digital data encoded by the second error correction
encoding algorithm.

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19. An information processing method according to
claim 11, further comprising:

20 a selecting step of selecting either the first or
second error correction encoding algorithm in
accordance with a type of the digital data.

25 20. An information processing method according to
claim 11, further comprising:

a radio transmitting step of transmitting the
digital data encoded by at least one of the first and

second error correction encoding algorithms.

21. An information processing apparatus,
comprising:

- 5 (a) first decoding means for decoding encoded
digital data;
- (b) first interleaving means for interleaving an
output of said first decoding means;
- 10 (c) second decoding means for decoding an output
of said first interleaving means; and
- (d) second interleaving means for interleaving an
output of said second decoding means;
wherein first and second error correction decoding
algorithms are executed by sharing said first decoding
15 means.

22. An information processing apparatus according
to claim 21, wherein the first error correction
decoding algorithm decodes the digital data by using
20 said first decoding means, and the second error
correction decoding algorithm decodes the digital data
by using said first and second decoding means.

23. An information processing apparatus according
25 to claim 22, wherein the first and second error
correction decoding algorithms are executed in
parallel.

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24. An information processing apparatus according
to claim 23, wherein a process of decoding the digital
data by the first error correction decoding algorithm
using said first decoding means and a process of
5 decoding the digital data by the second error
correction decoding algorithm using said second
decoding means, are executed in parallel.

25. An information processing apparatus according
10 to claim 21, wherein the first error correction
decoding algorithm performs a soft judgement decoding
of the digital data.

26. An information processing apparatus according
15 to claim 21, wherein the second error correction
decoding algorithm performs a turbo decoding of the
digital data.

27. An information processing apparatus according
20 to claim 21, wherein said first decoding means
normalizes a state metric value.

28. An information processing apparatus according
to claim 21, wherein a constraint length of the digital
25 data decoded by the first error correction decoding
algorithm is different from a constraint length of the
digital data decoded by the second error correction

decoding algorithm.

29. An information processing apparatus according to claim 21, further comprising:

5 selecting means for selecting either the first or second error correction decoding algorithm in accordance with a type of the digital data.

10 30. An information processing apparatus according to claim 21, further comprising:

 radio transmitting means for transmitting the digital data decoded by at least one of the first and second error correction decoding algorithms.

15 31. An information processing method, comprising:

 (a) a first decoding step of for decoding encoded digital data;

 (b) a first interleaving step of interleaving an output of said first decoding step;

20 (c) a second decoding step of decoding an output of said first interleaving step;

 (d) a second interleaving step of interleaving an output of said second decoding step; and

25 (e) a control step of making first and second error correction decoding algorithms be executed by sharing said first decoding step.

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32. An information processing method according to
claim 31, wherein the first error correction decoding
algorithm decodes the digital data by using said first
decoding step, and the second error correction decoding
5 algorithm decodes the digital data by using said first
and second decoding steps.

33. An information processing method according to
claim 32, wherein the first and second error correction
10 decoding algorithms are executed in parallel.

34. An information processing method according to
claim 33, wherein a process of decoding the digital
data by the first error correction decoding algorithm
15 using said first decoding step and a process of
decoding the digital data by the second error
correction decoding algorithm using said second
decoding step, are executed in parallel.

20 35. An information processing method according to
claim 31, wherein the first error correction decoding
algorithm performs a soft judgement decoding of the
digital data.

25 36. An information processing method according to
claim 31, wherein the second error correction decoding
algorithm performs a turbo decoding of the digital

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data.

37. An information processing method according to
claim 31, wherein said first decoding step normalizes a
5 state metric value.

38. An information processing method according to
claim 31, wherein a constraint length of the digital
data decoded by the first error correction decoding
10 algorithm is different from a constraint length of the
digital data decoded by the second error correction
decoding algorithm.

39. An information processing method according to
15 claim 31, further comprising:

a selecting step of selecting either the first or
second error correction decoding algorithm in
accordance with a type of the digital data.

20 40. An information processing method according to
claim 31, further comprising:

a radio receiving step of receiving the digital
data.